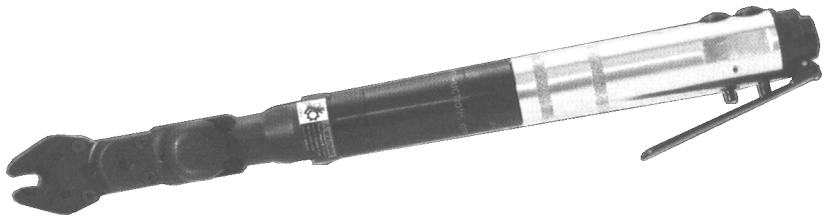
Cleco®

35TNAL & 35TNL Series
Tubenut Nutrunners



35	TN	A	L	-	XX	-	X

Series:
35

Nutrunner:
TN Tubenut

Clutch Designation:
A Clecomatic
----- Stall

Handle:
L Lever

Gear Train Designation:
5 10
7

Terminations:
6
9

NORTH AMERICA

P.O. Box 1410
Lexington, SC 29071

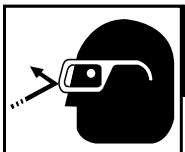
EUROPE

Postfach 30
D-73461 Westhausen

Safety Recommendations

For your safety and the safety of others, read and understand the safety recommendations and operating instructions before operating a nutrunner.

Always wear protective equipment:



⚠ WARNING

Impact resistant eye protection must be worn while operating or working near this tool.

For additional information on eye protection and face protection, refer to Federal OSHA Regulations, 29 Code of Federal Regulations, Section 1910.133., Eye and Face Protection, and American National Standards Institute, ANSI Z87.1, Occupational and Educational Eye and Face Protection. Z87.1 is available from the American National Standards Institute, Inc., 11 West 42nd Street, New York, NY 10036.

⚠ CAUTION

Personal hearing protection is recommended when operating or working near this tool.

Hearing protection is recommended in high noise areas 85 dBA or greater. The operation of other tools and equipment in the area, reflective surfaces, process noises and resonant structures can substantially contribute to, and increase the noise level in the area. Excessive air pressure above 90 PSIG or worn motor components can also increase sound level emitted by tool. Proper hearing conservation measures, including annual audiograms and training in the use and fit of hearing protection devices may be necessary. For additional information on hearing protection, refer to Federal Regulations, Section 1910.95, Occupational Noise Exposure, and American National Standards Institute, ANSI S12.6, Hearing Protectors.

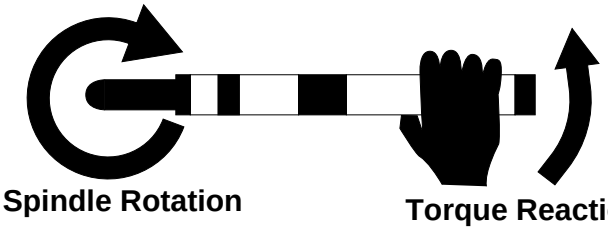
Cleco nutrunners are designed to operate on 90 psig (6.2 bar) maximum air pressure. If the tool is properly sized and applied, higher air pressure is unnecessary. Excessive air pressure increases the loads and stresses on the tool parts, sockets, and fasteners and may result in breakage. Installation of a filter-regulator-lubricator in the air supply line ahead of the tool is recommended. Before the tool is connected to the air supply, check the throttle for proper operation (i. e., throttle moves freely and returns to closed position). Being careful not to endanger adjacent personnel, clear the air hose of accumulated dust and moisture. Before connecting a tool to the air hose or removing a tool from service, make sure the air line is shut off and drained of air. This will prevent the tool from operating if the throttle is accidently engaged.

⚠ CAUTION

When using nutrunners, be sure the throttle is positioned relative to the head so that the throttle will not become wedged against an adjacent object in the "ON" position due to torque reaction. The head may be repositioned with respect to the lever to accommodate proper location for task. If tool is to be reversed, locate throttle lever in a neutral position that will prevent entrapment. Refer to operating instructions for additional information.

It is essential for safe operation that any operator of a nutrunner use good balance, sure footing, and proper posture in anticipation of a torque reaction.

Tools with clutches can stall rather than shut-off if adjusted over maximum power output of tool, or if there is a drop in air pressure. Operator must then resist stall torque until throttle is released.



Tool balance arms are available to absorb the torque reaction of the tool while balancing the weight of the tool for improved ergonomic applications.

⚠ WARNING

Pinch Hazard. To avoid injury to fingers, Keep hands away from wrench opening.

Keep hands away from wrench opening to avoid injury to fingers.

Some individuals may be susceptible to disorders of the hands and arms when performing tasks consisting of highly repetitive motions and/or exposure to extended vibration. Cumulative trauma disorders such as carpal tunnel syndrome and tendonitis may be caused or aggravated by repetitious, forceful exertions of the hands and arms. Vibration may contribute to a condition called Raynaud's Syndrome. These disorders develop gradually over periods of weeks, months, and years. It is presently unknown to what extent exposure to vibrations or repetitive motions may contribute to the disorders. Hereditary factors, vasculatory or circulatory problems, exposure to cold and dampness, diet, smoking and work practices are thought to contribute to the conditions.

Any tool operator should be aware of the following warning signs and symptoms so that a problem can be addressed before it becomes a debilitating injury. Any user suffering prolonged symptoms of tingling, numbness, blanching of fingers, clumsiness or weakened grip, nocturnal pain in the hand, or any other disorder of the shoulders, arms, wrists, or fingers is advised to consult a physician. If it is determined that the symptoms are job related or aggravated by movements and postures dictated by the job design, it may be necessary for the employer to take steps

⚠ WARNING

Repetitive work motions and/or vibration may cause injury to hands and arms.
Use minimum hand grip force consistent with proper control and safe operation.
Keep body and hands warm and dry.
Avoid anything that inhibits blood circulation.
Avoid continuous vibration exposure.
Keep wrists straight.
Avoid repeated bending of wrists and hands.

Safety Recommendations

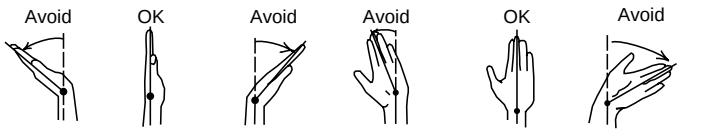
to prevent further occurrences. These steps might include, but are not limited to, repositioning the workpiece or redesigning the workstation, reassigning workers to other jobs, rotating jobs, changing work pace, and/or changing the type of tool used so as to minimize stress on the operator. Some tasks may require more than one type of tool to obtain the optimum operator/tool/task relationship.

The following suggestions will help reduce or moderate the effects of repetitive work motions and/or extended vibration exposure:

• Use a minimum hand grip force consistent with proper control and safe operation

• Keep body and hands warm and dry (cold weather is reported to be a major factor contributing to Raynaud's Syndrome)

• Avoid anything that inhibits blood circulation
  —Smoking Tobacco (another contributing factor)
  —Cold Temperatures
  —Certain Drugs



• Tasks should be performed in such a manner that the wrists are maintained in a neutral position, which is not flexed, hyperextended, or turned side to side.

• Stressful postures should be avoided — select a tool

• Avoid highly repetitive movements of hands and wrists, and continuous vibration exposure (after each period of operation, exercise to increase blood circulation)

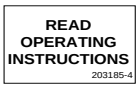
• Keep tool well maintained and replace worn parts

Work gloves with vibration reducing liners and wrist supports are available from some manufacturers of industrial work gloves. Tool wraps and grips are also available from a number of different manufacturers. These gloves, wraps, and wrist supports are designed to reduce and moderate the effects of extended vibration exposure and repetitive wrist trauma. Since they vary widely in design, material, thickness, vibration reduction, and wrist support qualities, it is recommended that the glove, tool wrap, or wrist support manufacturer be consulted for items designed for your specific application. **WARNING! Proper fit of gloves is important. Improperly fitted gloves may restrict blood flow to the fingers and can substantially reduce grip strength.**

For more information on the safe use of portable air tools, see the latest edition of ANSI B186.1, Safety Code for Portable Air Tools, available from the American National Standards Institute, Inc. 11 West 42nd Street, New York, NY 10036.

This information is a compilation of general safety practices obtained from various sources available at the date of production. However, our company does not represent that every acceptable safety practice is offered herein, or that abnormal or unusual circumstances may not warrant or require additional procedures. Your work may require additional specific safety procedures. Follow these procedures as required by your company.

Warning Labels
The warning labels found on these tools are an essential part of this product. Labels should not be removed. Labels should be checked periodically for legibility. Replace warning labels when missing or when the information can no longer be read. Replacement labels can be ordered as any spare part.



203185

203289

204208

OPERATING INSTRUCTIONS

CLECOMATIC MODELS
Tools equipped with the CLECOMATIC clutch are designed to tighten the fastener to a predetermined torque and shut off automatically. Releasing the throttle lever will allow the tool to reset for the next cycle.

CLECOMATIC CLUTCH ADJUSTMENT
Shut off air supply to the tool and rotate the adjustment cover 202829, 180° to uncover the adjustment slot in the clutch housing. Rotate the spindle until the hole in the adjustment nut is visible in the slot. Use a 1/8" diameter pin to hold the nut. Use a suitable tool to turn the spindle in a counterclockwise direction to increase torque or clockwise to decrease torque. Return the adjustment cover to its closed position after every adjustment.

If the clutch is adjusted over the maximum power output of the tool, the clutch will not function and the tool will operate like a stall-type tool. Also, if the tool is being operated at its upper torque limits, a drop in air pressure could cause the clutch not to function due to a loss of motor power and the tool will function like a stall-type tool. If tool stalls operator must resist stall torque until the throttle lever is released.

Operational check: Grip tool securely and be prepared to counteract stall torque in case clutch is improperly adjusted. THIS IS A HIGH TORQUE TOOL.

THROTTLE POSITION
The throttle lever may be repositioned to accomodate proper location for task and to avoid hand entrapment. Repositioning of the head is done by adding or removing head positioning shims. Retighten head with proper wrench.

AIR SUPPLY
The tool is designed to operate at 90 psig (6.2 bar) air pressure. The air pressure should be checked at the tool's air inlet while the tool is running.

For maximum performance, use a 5/16" I.D. air hose up to 8' in length. If additional length is required, a 3/8" I.D. or larger hose should be connected to the 5/16" I.D. hose.

SERVICE INSTRUCTIONS

LUBRICATION
An automatic in-line filter-regulator-lubricator is recommended as it increases tool life and keeps the tool in sustained operation. The in-line lubricator should be regularly checked and filled with a good grade of 10W machine oil. Proper adjustment of the in-line lubricator is performed by placing a sheet of paper next to the exhaust ports and holding the throttle open approximately 30 seconds. The lubricator is properly set when a light stain of oil collects on the paper. Excessive amounts of oil should be avoided.

Application of the tool should govern how frequently it is greased. It is recommended that the idler gears and head gears receive a generous amount of NLGI 2-EP grease at every repair cycle.

STORAGE
In the event that it becomes necessary to store the tool for an extended period of time (overnight, weekend, etc.), it should receive a generous amount of lubrication at that time and again when returned to service. The tool should be stored in a clean and dry environment.

DISASSEMBLY — GENERAL (ALL MODELS)
Unscrew (left hand threads) and remove the head. Unscrew (left hand threads) and remove the clutch housing and clutch. Unscrew and remove the gear case assembly. Note: On models equipped with an automatic shut-off device, the trip rod should be removed at this time to prevent its being lost or misplaced. The motor unit may now be removed from the backhead. See the following paragraphs for complete disassembly instructions on the various subassemblies.

NO. 6 TUBENUT HEAD DISASSEMBLY
The pinion bearing retainer 863564, may be removed by utilizing a 5/8" hex nut. Engage the nut in the bearing retainer and unscrew the retainer using a deep socket. The base plate 204291 can be removed using a 3/32" hex wrench to unscrew four 204317 and two 204316 flat head screws. All gears and gear shafts slip fit in the base plate and housing, but it may be required to tap shafts out with a punch. All bearings must be pressed out of gears. The driven gear bearing 842517, can be pressed off pinion shaft 204298, and pinion shaft can be pressed through pinion shaft gear 204305, and driven gear 864819 .The pawl can be removed and pawl alignment pin 842481 can be driven out with punch. When reassembling head a generous amount of NLGI 2-EP grease should be applied to all gears. The pawl should be lightly greased.

NO. 9 TUBENUT HEAD DISASSEMBLY
The pinion bearing retainer 863564, may be removed by utilizing a 5/8" hex nut. Engage the nut in the bearing retainer and unscrew the retainer using a deep socket. The base plate 204650 can be removed using a 3/32" hex wrench to unscrew four 204317 and two 204316 flat head screws. All gears and gear shafts slip fit in the base plate and housing, but it may be required to tap shafts out with a punch. All bearings must be pressed out of gears. The driven gear bearing 842517, can be pressed off pinion shaft 204298, and pinion shaft can be pressed through pinion shaft gear 204305, and driven gear 864819 .The stop pin spring 204621 and stop pin 204639 can be removed. When reassembling head a generous amount of NLGI 2-EP grease should be applied to all gears. The pawl should be lightly greased.

CLUTCH DISASSEMBLY
Unscrew the adjustment nut 202824. This will allow the adjustment plate 202754, thrust bearing No. 847596, thrust race 202753, torque spring, release spring 202752, release sleeve 203271, three (3) steel balls 842161, ball retainer 203272, and five (5) steel balls 844077, to be removed from the clutch spindle assembly.

Wash the spindle assembly in a solvent and rotate the cam 203270, to remove as much grease as possible. Remove the retainer ring 202749, ball plug 202748, and twelve (12) steel balls 842161, from the cam. This will allow the trip plunger 202745, reset spring 202763, and pin 843231, to be removed from the rear of the clutch spindle 202848.

GEAR CASE DISASSEMBLY
If replacement of the idler gear pins is necessary, they should be pressed out the rear of the spider. See Fig. 1 for replacement pin height.

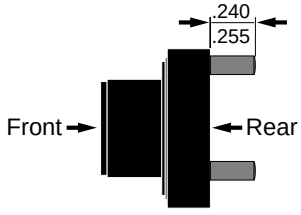
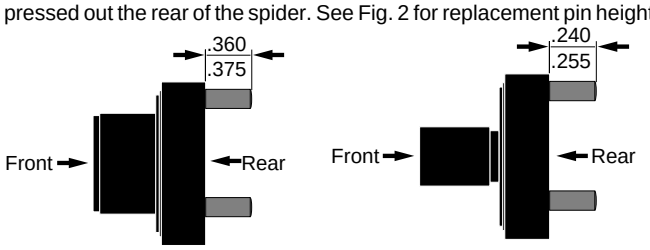


Fig. 1 — Single Reduction Spider

Double Reduction — Gear Train
Both spiders should be removed from the rear of gear case 867907. Remove the retainer ring 844364, and press the bearing 847147, out the front of the gear case.

If replacement of the idler gear pins is necessary, they should be pressed out the rear of the spider. See Fig. 2 for replacement pin height.



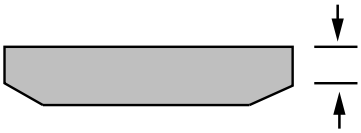
10 2nd Reduction Spider **5, 7, 10 1st Reduction Spider**

Fig. 2 — Double Reduction Spiders

MOTOR DISASSEMBLY
Use a soft-faced hammer to drive the rotor out of the front rotor bearing 619377. This will allow the cylinder and five (5) rotor blades to be removed from the rotor. Set the rear bearing plate on the vise jaws with the rotor hanging down. Use a 7/32" punch to drive the rotor out of the rear rotor bearing.

BACKHEAD DISASSEMBLY
Unscrew and remove the inlet bushing 867882, for inspection and cleaning of the air inlet screen 833300. Replace the screen if clogged or torn. The throttle valve and related components may be removed by unscrewing the throttle valve cap 832207. The reversing valve 204172, and related components may be removed by unscrewing the second throttle valve cap 832207, and driving the pin 864734, in the side of the backhead out.

REASSEMBLY — GENERAL
All parts should be washed in a solvent and inspected for damage or wear. Particular attention should be given to all bearings, gears, gear pins, and rotor blades as failure of these parts could cause damage to more expensive parts. Rotor blades should be replaced every time tool is repaired or if they measure less than 3/16" on either end.


Must be replaced if less than 3/16" (4.7mm) on either end.

Inspect and replace any "O"-rings or seals that show signs of wear or deterioration. All gears, gear pins, and open bearings should receive a generous amount of NLGI 2-EP grease during reassembly.

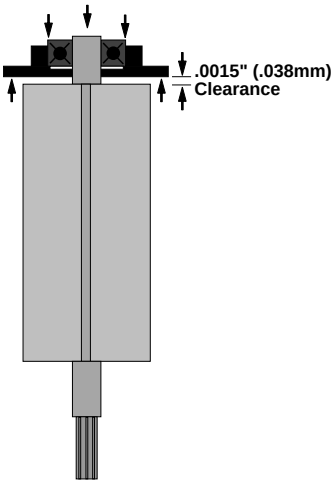
During reassembly of the clutch, all parts should receive a thin coating of a mixture of 10W machine oil and NLGI 2-EP grease.

Reassembly of all of the various sub-assemblies is in the reverse order of disassembly; however, the following paragraphs list some of the more important reassembly procedures.

TUBENUT HEAD REASSEMBLY
Assemble the tubenut head in the reverse order of disassembly.
Note: Pinion gear needle bearing is a slip fit on pinion gear.

Alignment of output gear is achieved by rotating the cam gear 204292 or 204641, until it stops against pawl 204296 or slot in cam gear 204641, then align opening in output gear with opening in housing.

MOTOR REASSEMBLY
Assemble the rear rotor bearing and rear bearing plate (press on the bearing's inner race) onto the rear rotor shaft until there is approximately .0015" clearance between the plate and rotor.



Assemble the five (5) rotor blades, cylinder, front bearing plate, and front rotor bearing (press on the bearing's inner race) to the rotor assembly. After final assembly, the cylinder should be held firmly, but not tightly between the two (2) bearing plates and the rotor should turn freely and not rub either bearing plate.

BACKHEAD ASSEMBLY
Assemble the backhead in reverse order of disassembly.
Note: Throttle valve bushing is held in by #609 locktite only.

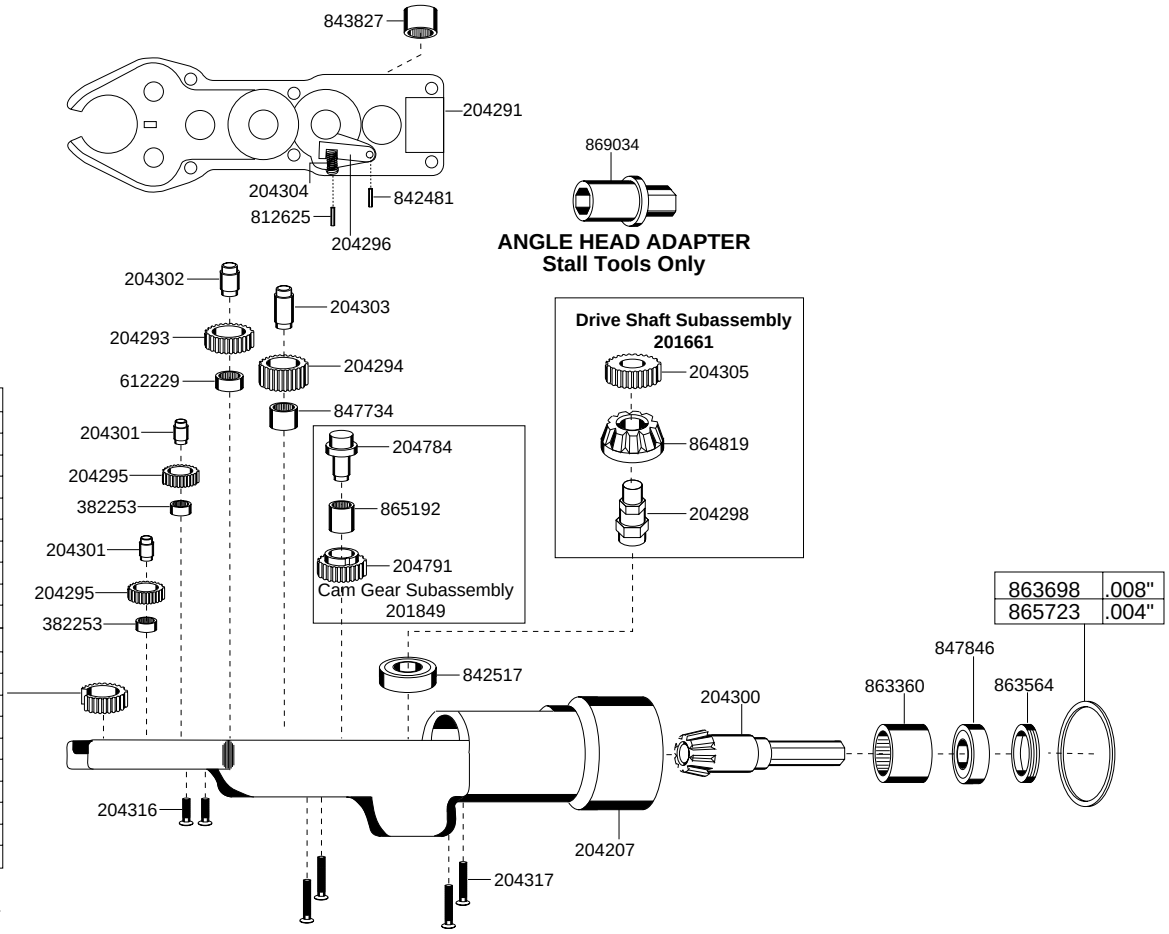
TRIP ROD SIZING (CLECOMATIC MODELS)
Assemble the tool completely less clutch assembly and trip rod. Position the right angle head in relation to the throttle lever. Use spacers 863698, to position head. Break assembly apart at the clutch housing and gear case (left hand threads) and install the spacers 869434, five (5) spacers 869423, and clutch assembly. Reassemble the tool. Measure gap between the clutch housing and gear case. Remove the appropriate number of spacers 869423, to allow clutch housing and gear case to make up tight. NOTE: Spacers are .030" (.76mm) thick. If there is not a gap, add spacers No. 869423, to achieve one. The total amount of spacers removed must be greater than the gap.

EXAMPLE: Gap is .048" (1.22mm). Remove two (2) .030 (.76mm) thick spacers — .060 (1.52mm) total.

Install trip rod. Screw clutch housing down until tool begins to start, continue to screw the housing down after tool starts one revolution. Measure the gap between the clutch housing and gear case. Cut this amount off the trip rod.

SAFETY CHECK
After repair or replacement of parts, tools equipped with an automatic shut-off device should be tested to verify that the device is functioning properly.

NO. 6 - 35TNAL & TNL
TUBENUT HEAD



OUTPUT GEAR		
PART NO.	IN	MM
204319	5/16	
204320		8
204321		9
204297	3/8	
204306		10
204308	7/16	11
204309		12
204310	1/2	
204311		13
EXTENDED OUTPUT GEAR		
PART NO.	IN	MM
204373	5/16	
204374		8
204375		9
204376	3/8	
204377		10
204378	7/16	11
204379		12
204380	1/2	
204381		13

All extended sockets extend 3/8" from base plate of head.

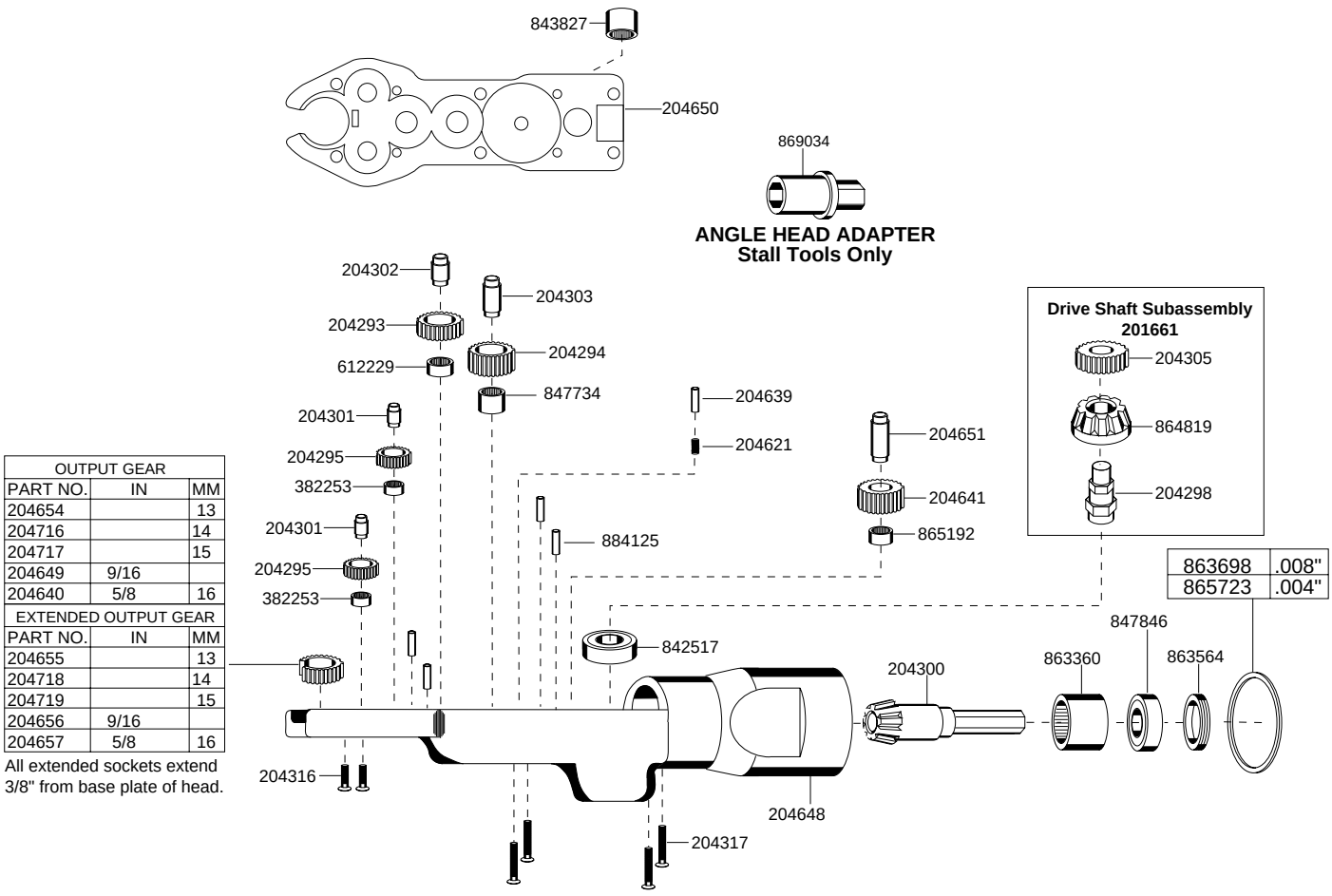
PARTS LIST

PART NO.	NAME OF PART	QTY.	PART NO.	NAME OF PART	QTY.
204207	Housing	1	204317	Flat Head Screw (Long)	4
204291	Base Plate	1	204791	Cam Gear (20T)	1
204293	Idler Gear (20T)	1	382253	Cam Gear Bearing & Idler Gear Bearing	3
204294	Step Over Gear	1	612229	Idler Gear Bearing	1
204295	Idler Gear (16T)	2	812625	Pawl Spring Retainer Pin	1
204296	Pawl (includes 842481)	1	842481	Pawl Alignment Pin (included in 204296)	1
204298Ð	Pinion Shaft	1	842517	Driven Gear Ball Bearing	1
204299	Cam Gear Shaft	1	843827	Driven Gear Needle Bearing	1
204300	Pinion Gear	1	847734	Step Over Gear Bearing	1
204301	Idler Gear Shaft	2	847846	Pinion Ball Bearing	1
204302	Idler Gear Shaft	1	863360	Pinion Needle Bearing	1
204303	Step Over Gear Shaft	1	863564	Pinion Bearing Retainer	1
204304	Pawl Spring	1	863698†	Head Positioning Shim (.008")	*
204305Ð	Pinion Shaft Gear	1	864819Ð	Driven Gear	1
204316	Flat Head Screw (Short)	2	865723†	Head Positioning Shim (.004")	*
			869034†	Head Adapter (Stall Tools Only)	1

*Number of spacers required is variable.
†Denotes parts not included in subassemblies listed below. Driven gear subassembly may be purchased using part no. 201661 (Ð parts included 204298, 204305 & 864819).

The complete No. 6 tubenut head and output gear (output gear size must be specified using chart above) can be purchased as a subassembly using Part No. 201663.

NO. 9 - 35TNAL & TNL
TUBENUT HEAD



OUTPUT GEAR		
PART NO.	IN	MM
204654		13
204716		14
204717		15
204649	9/16	
204640	5/8	16
EXTENDED OUTPUT GEAR		
PART NO.	IN	MM
204655		13
204718		14
204719		15
204656	9/16	
204657	5/8	16

All extended sockets extend 3/8" from base plate of head.

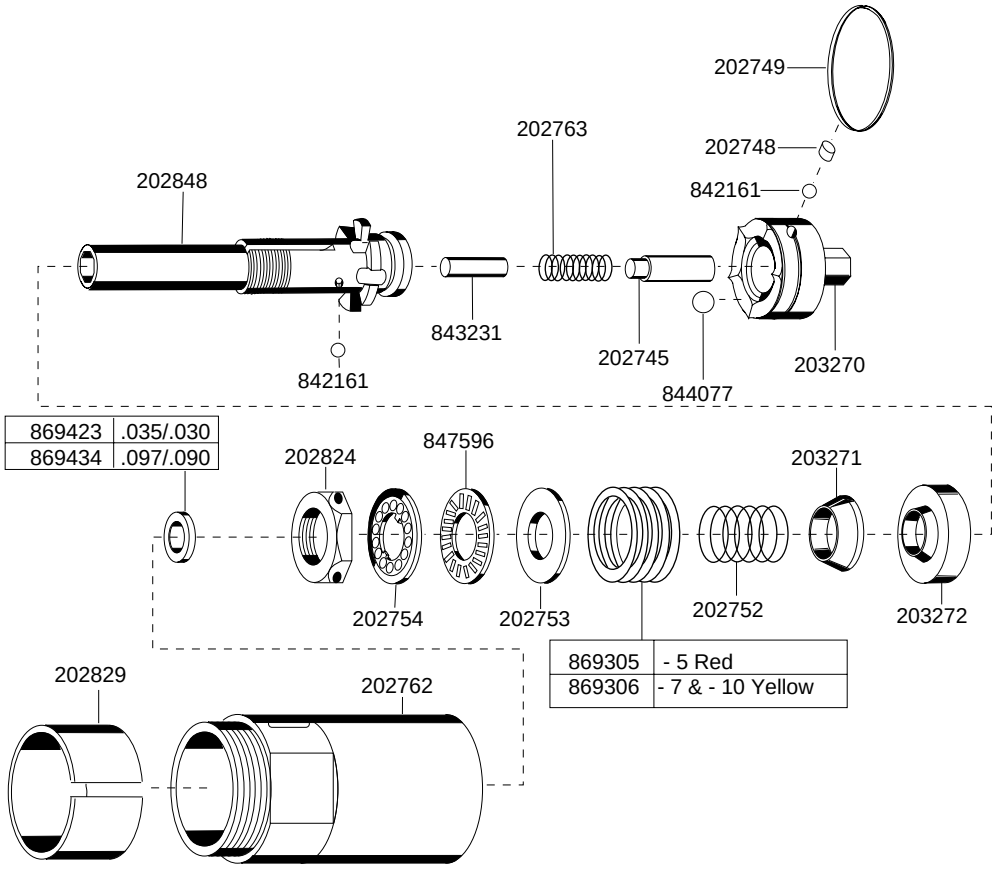
PARTS LIST

PART NO.	NAME OF PART	QTY.	PART NO.	NAME OF PART	QTY.
204293	Idler Gear (20T)	1	204650	Base Plate	1
204294	Step Over Gear	1	204651	Cam Gear Shaft	1
204295	Idler Gear (16T)	2	382253	Idler Gear Bearing	2
204298Ð	Pinion Shaft	1	612229	Idler Gear Bearing	1
204299	Cam Gear Shaft	1	842517	Driven Gear Ball Bearing	1
204300	Pinion Gear	1	843827	Driven Gear Needle Bearing	1
204301	Idler Gear Shaft	2	847734	Step Over Gear Bearing	1
204302	Idler Gear Shaft	1	847846	Pinion Ball Bearing	1
204303	Step Over Gear Shaft	1	863360	Pinion Needle Bearing	1
204305Ð	Pinion Shaft Gear	1	863564	Pinion Bearing Retainer	1
204316	Flat Head Screw (Short)	2	863698†	Head Positioning Shim (.008")	*
204317	Flat Head Screw (Long)	4	864819Ð	Driven Gear	1
204621	Stop Pin Spring	1	865192	Cam Gear Needle Bearing	1
204639	Stop Pin	1	865723†	Head Positioning Shim (.004")	*
204641	Cam Gear (24T)	1	869034†	Head Adapter (Stall Tools Only)	1
204648	Housing	1	884125	Alignment Pin (included in housing)	4

*Number of spacers required is variable.
†Denotes parts not included in subassemblies listed below. Driven gear subassembly may be purchased using part no. 201661 (Ð parts included 204298, 204305 & 864819).

The complete No. 9 tubenut head and output gear (output gear size must be specified using chart above) can be purchased as a subassembly using Part No. 201773.

35 CLECOMATIC CLUTCH



PART NO.	NAME OF PART	QTY.
202745	Trip Plunger	1
202748	Ball Plug	1
202749	Retainer Ring	1
202752	Release Spring	1
202753	Thrust Race	1
202754	Adjustment Plate	1
202762*	Clutch Housing	1
202763	Reset Spring	1
202822	Torque Spring (Green)	1
202824	Adjustment Nut	1
202829	Adjustment Cover	1
202848	Clutch Spindle	1
203270	Clutch Cam	1
203271	Release Sleeve	1
203272	Ball Retainer	1
842161	3/16" Steel Ball	15
843231	Reset Pin	1
844077	5/16" Steel Ball	5
847596	Thrust Bearing	1
869305	Torque Spring (Red)	1
869306	Torque Spring (Yellow)	1
869423*	Steel Spacer (.030"/.035")	**
869434*	Spacer (.090"/.097")	1

* Denotes parts not included in subassembly.

** Number of spacers required is variable.

The complete clutch can be purchased as a subassembly using Part No.

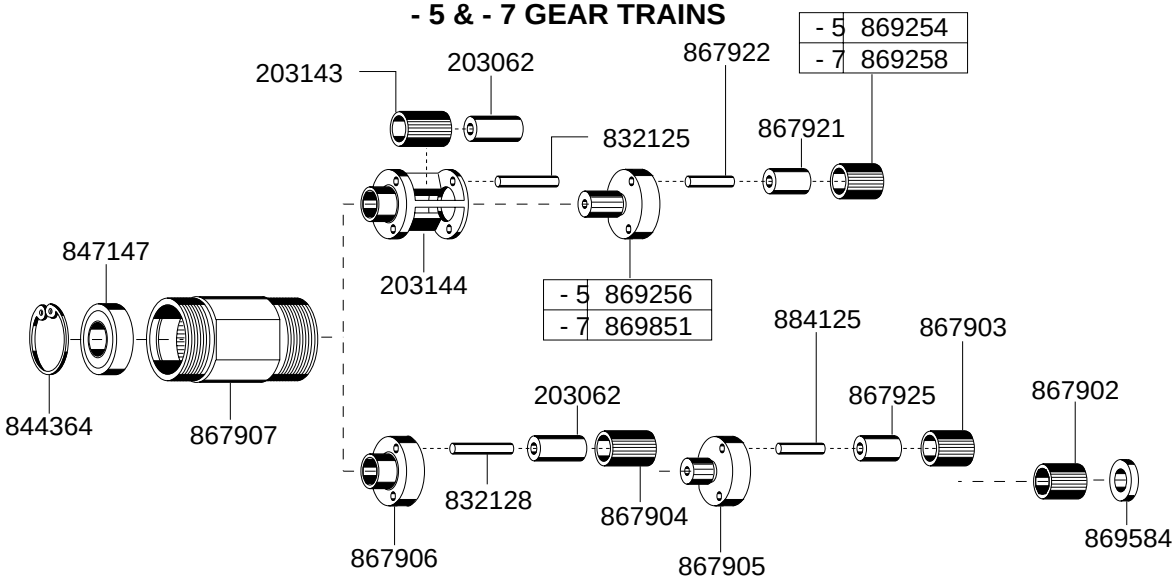
201387 — 2, 5

201385 — 7, 10

201388 — 20

35- 5, 7 & 10
GEAR TRAINS

- 5 & - 7 GEAR TRAINS



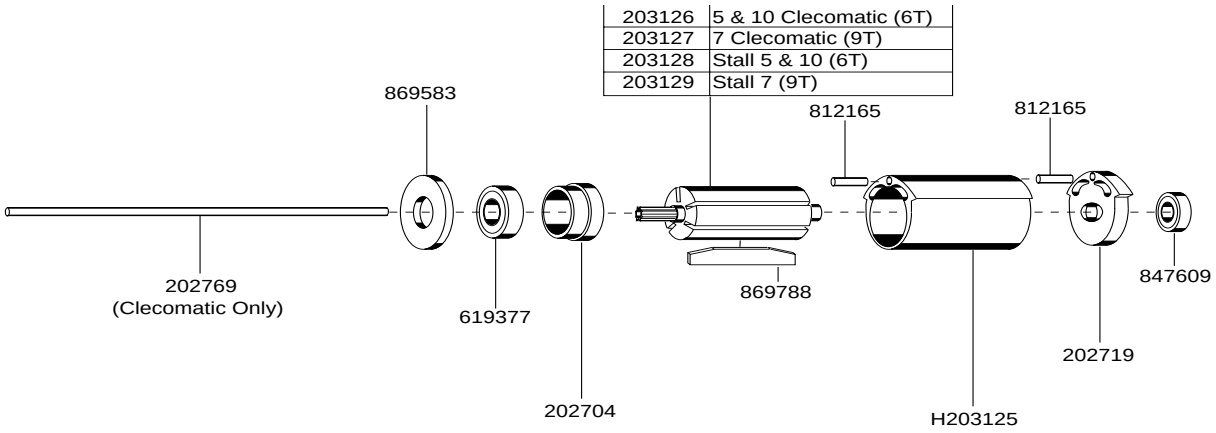
- 10 GEAR TRAIN

Part No.	Name of Part	Qty.
203062	2nd Red. Gear Bushing	3
203143	5 & 7 2nd Red. Gear	3
203144	5 & 7 2nd Red. Spider	1
832125	5 & 7 2nd Red. Gear Pin	3
832128	10 2nd Red. Gear Pin	3
844364	Retainer Ring	1
847147	Ball Bearing	1
867902	10 Rotor Pinion (15T)	1
867903	10 1st Red. Gear (15T) incl. 867925	3
867904	10 2nd Red. Gear (15T)	3
867905	10 1st Red. Spider - incl. 884125	1
867906	10 2nd Red. Spider - incl. 832128	1
867907	Gear Case	1
867921	5 & 7 1st Red. Gear Bearing	3
867922	5 & 7 1st Red. Gear Pin	3
867925	10 1st Red. Gear Bushing	3
869254	5 1st Red. Gear (19T) incl. 867921	3
869256	5 1st Red. Spider incl. 867922	1
869258	7 1st Red. Gear (17T) incl. 867921	3
869584*	Pinion Spacer	1
869851	7 1st Red. Spider - incl. 867922	1
884125	10 1st Red. Gear Pin	3

* Denotes parts not included in subassembly.
The complete gear case can be purchased as a subassembly using Code Numbers listed below.

5 — Code No. 201325
7 — Code No. 201326
10 — Code No. 861578

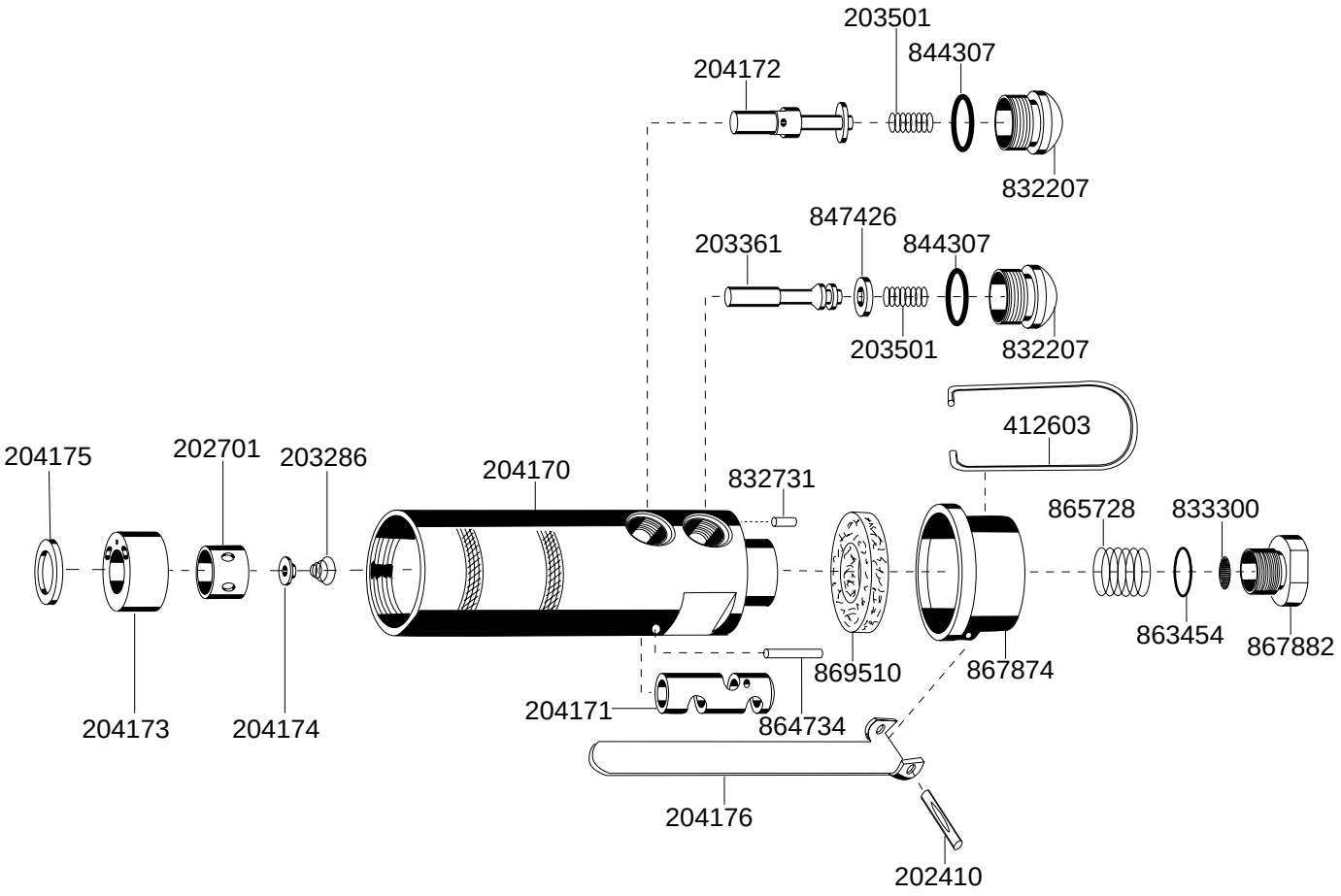
MOTORS
FOR
35TNAL & 35TNL



PARTS LIST

PART NO.	NAME OF PART	QTY.
202704	Front Bearing Plate	1
202719	Rear Bearing Plate	1
202769	Trip Rod (.062" Dia. x 5/4" Lg.)	1
H203125	Cylinder (incl. 812165 (2))	1
203126	Rotor (Clecomatic 5 & 10) (6T)	1
203127	Rotor (Clecomatic 7) (9T)	1
203128	Rotor (Stall 5 & 10) (6T)	1
203129	Rotor (Stall 7) (9T)	1
619377	Ball Bearing	1
812165	Cylinder Pin	2
847609	Ball Bearing	1
869583	Gear Case Spacer	1
869788	Rotor Blade	5

35TNAL NUTRUNNER HANDLE



PARTS LIST — HANDLE FOR 35TNAL & 35TNL NUTRUNNER

PART NO.	NAME OF PART	QTY.	PART NO.	NAME OF PART	QTY.
202410	Lever Pin	1	412603	Bail	1
202701*	Motor Spacer	1	832207	Throttle Valve Cap (incl. 844307)	2
203286*	Shut-Off Valve Spring	1	832731	Pin	1
203361	Throttle Valve	1	833300	Inlet Screen	1
203501	Throttle Valve Spring	2	844307	Throttle Valve Cap "O"-ring	2
204170	Backhead (incl. 204171 & 832731)	1	847426	Throttle Valve Seal	1
204171	Reversing Valve Bushing	1	863454	Inlet Bushing "O"-ring	1
204172	Reversing Valve	1	864734	Reversing Valve Retainer Pin	1
204173*	Inlet Plate	1	865728	Inlet Bushing Spring	1
204174*	Shut-Off Valve	1	867874	Exhaust Deflector	1
204175*	Seal	1	867882	Inlet Bushing	1
204176	Lever	1	869510	Muffler	1

The complete handle can be purchased as a subassembly using the part number 201637.

* Parts not included in 201637 handle subassembly.

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